

1.1 SPECIFICATION

- 1.1.1 The published specification for the Racal-Dana Frequency Standard Distribution System 9478 is given in Table 1.1

TABLE 1.1

Technical Specification

INTERNAL FREQUENCY STANDARD	
Options Available:	A choice of two crystal controlled oscillators from the Racal-Dana range is offered. The technical specifications are given under OPTIONAL FREQUENCY STANDARDS at the end of this section of the manual.
EXTERNAL FREQUENCY STANDARD	
Frequency:	1 MHz, 2 MHz, 2.5 MHz, 5 MHz or 10 MHz. The phase lock pull-in range is 10×10^{-6} of the nominal frequency.
Input Level:	100 mV to 5 V r.m.s.
Input Impedance:	50 Ω
Connector:	Connection is to a BNC socket on the rear panel. The system automatically selects the external standard when an input having sufficient amplitude is present.
Indicator:	A front panel indicator lights, and a TTL compatible logic '1' level is present at a rear panel connector, when the system is operating from the external standard.

TABLE 1.1 (Continued)
Technical Specification

OUTPUT PARAMETERS	
Number of Output Sockets:	Nine
Output Frequencies:	Frequencies of 1 MHz, 5 MHz and 10 MHz are available. The standard configuration is with channels 1, 2 and 3 giving 10 MHz, channels 4, 5 and 6 giving 5 MHz and channels 7, 8 and 9 giving 1 MHz. Any other combination of frequencies and outputs can be obtained by means of internal links.
Output Level:	0.9 V to 1.25 V r.m.s. into 50 Ω
Output Impedance:	50 Ω
Connectors:	Rear panel mounted BNC sockets.
Indicators:	A separate front panel indicator is provided for each channel. This lights when a channel output is present. A single, TTL compatible, logic '1' level is present at a rear panel connector if any channel output fails.
Monitor Output:	A low level, 10 MHz output, giving 500 mV \pm 100 mV r.m.s. into 50 Ω , is available at a front panel BNC socket.
Output Harmonics:	At least 30 dB below the output level.
Spurious:	At least 80 dB below the output level.
Sub-harmonics:	At least 70 dB below the output level.
Line Related Sidebands: (operating on internal frequency standard)	At least 70 dB below the output level
Output Socket Protection:	The channel output sockets will withstand continuous short circuit conditions. Each socket will withstand the continuous application of reverse power not exceeding 500 mW.

TABLE 1.1 (Continued)

Technical Specification

POWER SUPPLY

Voltage:	A four-range supply voltage selector is provided to accept 100 V, 115 V, 215 V or 230 V AC $\pm 10\%$.
Frequency:	45 Hz to 440 Hz.
Power Consumption:	Approximately 15 VA

MECHANICAL PARAMETERS

Dimensions:	Height: 104 mm Width: 440 mm Depth: 403 mm
Weight:	Approximately 4 kg

ENVIRONMENTAL SPECIFICATION

Operating Temperature Range:	0°C to +55°C
Storage Temperature Range:	-40°C to +70°C
Relative Humidity:	95% at +40°C
Safety:	The equipment has been designed to meet the safety requirements of IEC publication 348.

ACCESSORIES SUPPLIED

Power Lead:	Part Number 23-3227
Fuse for 90/127 V Operation:	Part Number 23-0022
Operator's Manual	

TABLE 1.1 (Continued)
Technical Specification

OPTIONAL ACCESSORIES	
19 inch Rack Mounting Kit:	Part Number 11-1496
Mating connector for rear panel mounted connector:	Cinch R43 81043 with shell R43 81960 Part Numbers 23-3215 and 23-3216

OPTIONAL FREQUENCY STANDARDS	
<u>Option 04A: Frequency Standard 9442</u>	
Type:	A fast warm up ovened oscillator suitable for the majority of applications.
Frequency:	5 MHz
Ageing Rate:	± 3 parts in 10^9 /day averaged over a minimum of 10 days after 3 months continuous operation.
Warm-up Time:	Better than ± 2 parts in 10^7 within 6 minutes.
Temperature Stability:	Better than ± 6 parts in 10^9 per $^{\circ}\text{C}$ averaged over the range -10°C to $+45^{\circ}\text{C}$, but operable to $+55^{\circ}\text{C}$.
<u>Option 04B: Frequency Standard 9421</u>	
Type:	An ovened oscillator of the utmost precision for use when the highest long term accuracy is essential.
Frequency:	5 MHz
Ageing Rate:	Initial: ± 2 parts in 10^9 per day averaged over a minimum of 10 days at shipment. Long Term: ± 5 parts in 10^{10} /day averaged over a minimum of 10 days after 3 months continuous operation.

TABLE 1.1 (Continued)
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OPTIONAL FREQUENCY STANDARDS (Continued)	
<u>Option 04B: Frequency Standard 9421 (Continued)</u>	
Warm-up Time:	Better than ± 1 part in 10^7 within 20 minutes.
Temperature Stability:	Better than ± 6 parts in 10^{10} per $^{\circ}\text{C}$ averaged over the range -10°C to $+45^{\circ}\text{C}$, but operable to $+55^{\circ}\text{C}$.